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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,442	07/19/2000	Alberto Pique	N.C.79.834	1870
7590	02/23/2005		EXAMINER	
Amy Loch Rassing Associate Counsel (Patent) Code 1008.2 Naval Research Laboratory Washington, DC 20375-5000			FULLER, ERIC B	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/619,442	<b>Applicant(s)</b> PIQUE ET AL.	
	<b>Examiner</b> Eric B Fuller	<b>Art Unit</b> 1762	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 15-26, 29, 31 and 33-39 is/are pending in the application.
- 4a) Of the above claim(s) 20-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-19, 26, 29, 31 and 33-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15-17, 26, 29, 31, and 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce, Jr. et al. (US 5,292,559) in view of Gnanamuthu et al. (US 4,716,270).

Joyce teaches a pulsed laser deposition process for depositing electrically conductive materials on to a transparent, flexible polymer or quartz, substrate that uses the same configuration as the applicant, i.e. laser through back of transparent substrate (column 2, lines 59-65). It is taught that a multi-layered source material that is deposited on the transparent substrate comprises a polymer and metal. The polymer has the property of partially being desorbed from the support when exposed to the laser so that the non-vaporized portion of the source material is deposited on the substrate (abstract). A gap exists between the target substrate and the receiving substrate (figures). It is taught to remove the remaining polymer from the source material that is deposited on the substrate by means known in the art (column 3, lines 35-40). The reference is silent to removing the polymer from the deposited source material with a laser.

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However, Gnanamuthu teaches that removing polymers by laser has the benefits of leaving the underlying metal undamaged (abstract). From this, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a laser to remove the polymer from the deposited material in Joyce. By doing so, one would reap the benefits of leaving the underlying metal undamaged. The metal with polymer reads on being the source material. After removal of the polymer, the metal that remains reads on being the material of interest.

As to the dependent claims, the breaking of bonds during vaporization of the polymer reads on decomposing. Only removing impurities reads on "substantially all" for claims 37-38. The source material may be multi-layered, but each layer is homogenous.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joyce, Jr. et al. (US 5,292,559) in view of Gnanamuthu et al. (US 4,716,270), as applied to claim 15 above, and further in view of Hirano et al. (US 6,099,626).

Joyce, in view of Gnanamuthu, teaches the limitations of claim 15, as shown above, but is silent to the source material comprising metal powder and an organometallic compound. However, Hirano teaches that a mixture of metal powders with organometallic compounds acts as an efficient light to heat converter (column 4, lines 18-44). From this, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize metal powders and organometallic

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compounds in the source material taught by Joyce. By doing so, one would reap the benefits of efficient light to heat conversion.

### ***Response to Arguments***

Applicant argues that the specification clearly states that transformation of source material is any action effected by the second laser that changes the composition or the properties of the deposited material. Applicant alleges that this is different from the removal of polymer impurities of the prior art. This argument is not found convincing. Certainly removal of polymer impurities would improve the metallic properties of the deposited material. Thus, the deposited material is changed in order to achieve a desired property. This is sufficient for reading on transformation, as required by the claims and interpreted by the specification.

Applicant argues that Joyce teaches away from the combination by desiring complete vaporization by the first vapor. Applicant bases this argument on presumptions that are not based on the reference, such as chemical stripping would be easier than determining the laser power needed to vaporize all of the polymer without harming the metal. This argument is not found convincing. The metal is transferred by pressure build-up and blow off. The laser power is selected to vaporize the polymer and does not directly affect the metal. Obviously, a pressure that is sufficient to blow off the metal may be achieved before each and every polymer molecule is vaporized. Although Joyce may wish to vaporize all of the polymer in the first step, by using a minimum amount of polymer in order to reduce waste and cost, to provide the exact

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amount of molecules to achieve the exact pressure necessary for blow-off would be impossible. To err of the side of too little polymer would result in a non-functional process. Too err in too much polymer, would result in a functional process wherein some unvaporized polymer is transferred as well as the metal. Joyce explicitly teaches that some unvaporized polymer is transferred and must be removed by means known in the art. This provides motivation for the proposed combination and therefore does not teach away from it.

Applicants argument is view of Hirano are not found convincing. Hirano teaches that metal powders and organometallic compounds act as an efficient light to heat converters. To use these materials in Joyce would have been obvious in order to increase the efficiency of the laser heating. To use a combination of the two would also have been obvious with the expectation of achieving additive results.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

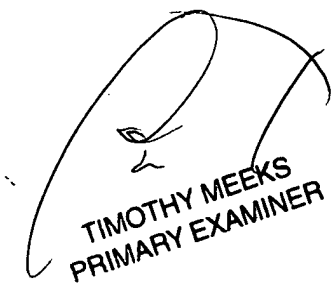
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (571) 272-1420. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive P Beck, can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



EBF



TIMOTHY MEEKS  
PRIMARY EXAMINER